

# Plant Health Care Report

Scouting Report of The Morton Arboretum



THE  
CHAMPION  
of TREES

Sept 8, 2023

Issue 2023.12

For comments regarding PHCR, or to subscribe to email alerts regarding posting of new issues, contact me at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org). Our report includes up-to-date disease and insect pest reports for northeastern Illinois. Contact us via email at [plantclinic@mortonarb.org](mailto:plantclinic@mortonarb.org) or by phone at 630-719-2424 (Monday thru Friday, 10 am to 4pm). The Plant Clinic is also open to walk-ins, but a [timed entry](#) and payment of entry fee is required for non-members.

## Quick View

### What indicator plant is in bloom at the Arboretum?

Seven sons flower (*Heptacodium miconioides*) is in flower (fig. 1)

Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 2418 (as of Sept 7).

**The season is winding down. There will be one more issue of the PHCR published on Sept 22.**

### Insects/other pests

- Box tree moth
- Home invaders
- Brown marmorated stinkbug
- Galls, really cool ones

### Diseases

- Your oak has oak wilt (or does it?)

### Miscellaneous

- Oak problems are complex
- Watering into autumn

### Upcoming educational events

- IAA Careers in Arboriculture Demonstration Event
- APGA Plant Health Workshop
- Landscape below ground conference



Figure 1 Seven sons flower

## Soil temperatures around Illinois (from Illinois State Water Survey)

This information will be provided all season. For data from other reporting stations, go to <https://warm.isws.illinois.edu/warm/soil/> (you will need to set up an account to access data.)

| Max. Soil temps<br>For 9/7/2023* | St. Charles<br>reporting station<br>(north) | Champaign<br>reporting station<br>(central) | Carbondale<br>reporting station<br>(south) |
|----------------------------------|---|---|--|
| 2-inch, bare soil                | 78.6  | 77  | 86.4                                       |
| 4-inch, bare soil                | 79.2  | 69.3  | 80.8                                       |
| 4-inch, under sod                | 74.1  | 76  | 79.1                                       |
| 8-inch, under sod                | 73  | 76.6  | 76.7                                       |

\* This is the maximum soil temperature recorded the day prior to publication of PHCR.

## Degree Days (current and compared to past years) and rainfall

As of Sept 7, we have 2418 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2022) for this date is 2529 GDD<sub>50</sub>. The table below shows a comparison of GDD in different years.

| Location                 | GDD as of<br>9/7/2023 | GDD as of<br>9/8/2022 |
|--------------------------|-----------------------|-----------------------|
| Carbondale, IL*          | 3510                  | 3636                  |
| Champaign, IL*           | 2991                  | 3061                  |
| Chicago Botanic Garden** | No report             | No report             |
| Glencoe*                 | 2039                  | 2264                  |
| Chicago O'Hare*          | 2800                  | 2904                  |
| Kankakee, IL*            | 2659                  | 2745                  |
| Lisle, IL*               | 2820                  | 2924                  |
| The Morton Arboretum     | 2418                  | 2721                  |
| Quincy, IL*              | 3223                  | 3232                  |
| Rockford, IL*            | 2571                  | 2582                  |
| Springfield, IL*         | 2059                  | 3147                  |
| Waukegan, IL* (60087)    | 2505                  | 2554                  |
| Waukegan, IL (60085)     | 2624                  | 2684                  |

\*\*Thank you to Chris Henning, Chicago Botanic Garden, for supplying us with this information.

\*We obtain most of our degree day information from the GDD Tracker from Michigan State University web site. For additional locations and daily degree days, go to <https://gddtracker.msu.edu/>

## Seasonal precipitation

| Seasonal precipitation (rain and melted snow) in inches. |                    |                    |                                |
|--|--------------------|--------------------|--------------------------------|
|  | 2023               | 2022               | Historical average (1937-2022) |
| Jan  | 2.85               | 1                  | 1.935                          |
| Feb  | 4.88               | 2.61               | 1.775                          |
| Mar  | 2.29               | 3.88               | 2.536                          |
| April  | 2.23               | 3.88               | 3.667                          |
| May  | .79                | 6.1                | 4.206                          |
| June   | 1.23               | 2.51               | 4.2                            |
| July   | 8.92               | 5.7                | 3.9                            |
| Aug  | 2.54 (whole month) | 2.42 (whole month) | 3.77 (whole month)             |
| Sept   | .41 (thru 9/7)     | 4.98 (whole month) | 3.3 (whole month)              |
| Year to date   | 26.14 (thru 9/7)   | 28.47 (thru 9/7)   | 29.28 (thru Sept)              |

### How serious is it?

Problems that can definitely compromise the health of the plant will be marked “serious”. Problems that have the potential to be serious and which may warrant chemical control measures will be marked “potentially serious”. Problems that are seldom serious enough for pesticide treatment will be marked “minor”. “Aggressive” will be used for weeds that spread quickly and become a problem and “dangerous” for weeds that might pose a risk to humans.

## Pest Updates: Insects

### Box tree moth (serious)

There are always new pests and diseases coming our way. One that is currently on the horizon, but not yet found in Illinois, is the box tree moth, or BTM (*Cydalima perspectalis*). This insect is native to Asia, but has become a serious problem in Europe and Canada. In recent years, it has also been found in the United States (in New York state in 2021 and in Michigan in 2022). This year, it was also found in Hamilton County in southwest Ohio.

The larvae (caterpillars) are the destructive stage of this insect. They will feed on the leaves of boxwood, with large populations leading to complete defoliation of the shrub. Once the leaves are consumed, the caterpillars will also feed on the bark and can girdle branches. This can lead to decline and death of the host plant.

BTM overwinters in the larval stage. The larvae begin feeding again in spring and then pupate on the host plant in cocoons, in mid-spring. Adults emerge from late spring through mid-summer. Females lay eggs, often in clusters of 5 to 20, on boxwood leaves. Climate determines how many generations there

will be in a year. Two generations per year have been noted in Canada; three may be possible in midwestern states.

For more details about this pest as well as information on how to identify it, see these websites:

<https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/box-tree-moth>

<https://bygl.osu.edu/node/2188>

[https://www.aphis.usda.gov/publications/plant\\_health/alert-box-tree-moth.pdf](https://www.aphis.usda.gov/publications/plant_health/alert-box-tree-moth.pdf)

[https://ilpestsurvey.inhs.illinois.edu/files/2022/04/2022-Most-Unwanted\\_April-2022.pdf](https://ilpestsurvey.inhs.illinois.edu/files/2022/04/2022-Most-Unwanted_April-2022.pdf)

### Home invaders (minor)

When the weather finally turns cold, some pests will become home invaders. Boxelder bugs (*Boisea trivittata*) are usually the number one complaint (although the brown marmorated stink bug, see article below, is vying for the title). These insects feed on sap of seeds, flowers, and leaves of boxelders (*Acer negundo*). Their feeding causes little damage to the tree.

Boxelder bugs (fig. 2) are considered to be a nuisance when large numbers of them appear in homes, especially in fall and spring. Nymphs are bright red when they first hatch, developing black wing pads over time. Adults are about ½ inch long, have three red or orange lines in back of their heads, and have black wings with red lines, and a red abdomen. Boxelder bugs overwinter as adults in protected sites. Since they consider your house to be a protected site, if you have cracks in your foundation or around your windows, they will enter your house through those cracks in fall. They do no harm in the house but are very annoying.



Figure 2 Boxelder bugs: nymph (above), adult (below)

While boxelder bugs show up like clockwork every year, some home invaders are occasional guests. These include the multi-colored Asian lady beetle, the leaf-footed beetle and squash bugs. The multi-colored Asian lady beetles are beneficial insects that eat pests like aphids. In fall, they can become an annoyance when they enter the home, sometimes in large numbers. They are not only annoying, they can bite! They can be yellow, red or orange in color and may have no spots or as many as 19. The front of the body is cream-colored with a black 'M' (perhaps a monogram for 'multi-colored?'). Go to

<http://bugguide.net/index.php?q=search&keys=Harmonia&search=Search> for photos.

Leaf-footed bugs and squash bugs often enter homes one at a time and so are easy to manage. Go to <http://bugguide.net/node/view/16073/bgimage> and <http://bugguide.net/index.php?q=search&keys=squash+bug&search=Search>

**Management:** Do not use insecticides inside the home. Caulk around doors and windows to minimize entry by the insects. Keep screens in good repair. Insects that do enter the home can be removed with a vacuum or manually. Do not crush boxelder bugs or ladybugs as they can leave a stain. The leaf-footed bug is related to stink bugs and will make a stink when handled. Squash bugs can make a stink and a stain when crushed. If boxelder bugs are accumulating on the outside of the house, they can be doused with soapy water.

Good website: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/boxelder-bugs/>

### **Brown marmorated stink bug (minor indoors, potentially serious outdoors)**

Speaking of home invaders: brown marmorated stink bugs or BMSB (*Halyomorpha halys*) are showing up more often now in the Chicago area. These insects overwinter in houses and become active again in spring. BMSB will feed on a variety of hosts including many fruit, vegetable and field crops, reducing yield on those crops. They have become a serious pest on crops in some states. There are other insects that resemble the BMSB, so check the websites listed below to see more pictures of this insect. The insect is similar in shape to other stink bugs (a somewhat 'shield-shaped' body), but the edge of the body has alternating black and white bands (fig. 3). The antennae will have light-colored bands on them. Overall, the body has a mottled appearance. When the weather cools off, adults will look to overwinter in homes, much like boxelder bugs.



Figure 3 Brown marmorated stink bug adult

**Management:** Managing this pest in the home is similar to managing boxelder bugs in the home. Caulk cracks and keep screens in good repair. Physically remove the insects in the home with a vacuum cleaner. These are stink bugs, and they do create a stink when threatened so removal by hand could be tricky. After removal by vacuum, the vacuum cleaner may have a smell for a while. The insects can also be knocked into a bucket of soapy water and left to drown.

Good websites with photos for identification:

<https://njaes.rutgers.edu/stink-bug/identify.php>

<http://www.stopbmsb.org/stink-bug-basics/look-alike-insects/>

## Galls, really cool ones (minor)

We have seen a lot of galls this summer, and most of them are the ones we see year after year. This year, one of my favorites has shown up, repeatedly, in the Plant Clinic email. It is the oak lobed gall (fig. 4), sometimes called the pine cone oak gall. It shows up on oaks and looks a bit like a pine cone. It is often 2 to 3 inches across and goes through some interesting color changes (pinks, reds and browns). This gall is caused by a wasp, *Andricus quercustrobilanus* (a cool name for a cool gall). The gall is composed of several wedge-shaped sections.



Figure 4 Oak lobed gall

Another cool gall was reported by one of our scouts a couple of years ago. Last year, I happened upon it myself while photographing prairie plants. It was found on *Rudbeckia*. The gall produces an amazing distortion of parts of the flowering head (fig. 5), in one case, to the point of rendering the flower nearly unrecognizable. It is caused by a midge, *Asphondylia rudbeckiaeconspicua*.

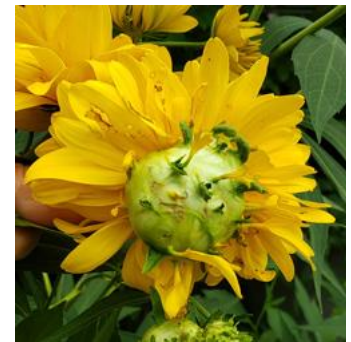


Figure 5 Gall on Rudbeckia  
(photo: L. Miranda)

Good websites: <https://bugguide.net/node/view/569331/bgimage>  
<https://bugguide.net/node/view/225386>

## Pest Updates: Disease

### Your oak has oak wilt (or does it?)

Here comes that phrase no one wants to hear: “Your oak has oak wilt”. Or maybe you’ve been told that your elm has Dutch elm disease, or that your maple tree has verticillium wilt. That proclamation may have come from a neighbor, or an arborist, or a municipal employee. In any case, it is time to stop and think, not panic. No one can say with 100% certainty that your tree has any of these diseases. No one, except the diagnostic professional who can prove it by culturing it out in a laboratory. Professionals who work in the field can say that they suspect a certain disease based on visible symptoms, but only the lab can confirm it.

There are several very serious diseases that really should be confirmed through laboratory testing. They include oak wilt, Dutch elm disease, Verticillium wilt, bacterial leaf scorch, bur oak blight and pine wilt nematode. Why is it important to be sure? Some of these diseases are very serious and can be fatal. Often, the only option is to cut the tree down. We want to verify the infection is there before we do that. In the case of Verticillium wilt, there is no way to save the tree, but if we can confirm Verticillium, we know that it will impact what we replant in that

area. Verticillium wilt is a disease pathogen that actually lives in the soil and it could potentially infect a new tree.

Laboratory testing is available in each state, through the state lab. In Illinois, the state lab is the [University of Illinois Plant Clinic](#). If you live in another state, you can find your state lab through the [National Plant Diagnostic Network](#). Some arborist companies also have their own labs and can provide testing.

## **Miscellaneous**

### **Oak problems are often complex**

The Plant Clinic at The Morton Arboretum has received a large number of calls about oak trees this season. In many cases, it is not easy to resolve the issue because there can be multiple problems affecting the tree at the same time. What are some of these problems?

Age may be playing a role in some cases. There are many older oaks across the Chicago region. Older trees have lived through more years of stress and this can affect their health. Disease may be part of the equation as well. We do see oak wilt in the region, as well as bur oak blight (bur oak only), anthracnose and *Phytophthora* root rot. These diseases vary in severity in terms of the impact they have on a tree. Some are fatal by themselves, and others are not. Those that are not fatal can still add stress to the tree and can be part of a more complex problem. Insects may be involved in some situations. In the last several years, we have seen large populations of scale insects on oaks. [Two-lined chestnut borer](#) has been reported as well, but that insect is often opportunistic, taking advantage of a tree stressed by other problems, rather than the actual cause.

The environment has become a big issue for oaks, as well as many other trees. The last decade has given us several very wet springs, extremely hot (and often dry) summers, and two polar vortices. This summer, we had extreme heat and drought in May and June, followed by excessive rain in July and more excessive heat in August. This type of up and down extreme weather has an impact on tree health. Temperatures above 86 degrees actually cause physiological damage to leaves and they can slow down or stop functioning. That means reduced photosynthesis (production of food) and reduced ability to produce leaves, buds and acorns.

There are things we do that may also have an impact on our oaks (and other trees). If we plant a garden under a tree, we may damage roots. If we install a sidewalk (driveway, swimming pool, etc.), roots may be damaged or soil may be compacted and make it more difficult for water to get into the soil and for roots to function properly. Construction projects may also

lead to grade changes and we end up with extra soil over the root system. That can limit the amount of oxygen getting to the roots and again root function will be impaired.

So, when we ask “What is wrong with my oak?” we are really asking a very complex question. To sort things out, we really need to take the time to consider all the problems discussed above. There will not always be a quick, easy answer. We are focusing on oaks in this article, because we are seeing so many doing poorly. Much of this information can apply to other trees, not just the oaks.

### **Watering into autumn**

This has been another difficult year for watering. Early summer was hot and very dry (at The Morton Arboretum we had only 2 inches total for May and June combined). Rainfall for July was 8.92 inches! As autumn comes on and the temperatures cool (we hope), there is often the assumption that the growing season is over and we can put the garden hose away. That really is not the case, even in a ‘normal’ year (if there is such a thing).

Should we be watering now? Because the rain has been so inconsistent, we really need to go out and observe the soil in our own yard. If the soil is dry, we should be watering. Watering is all about what the plant needs now. The weather, not the calendar, is our guidepost. Look at and feel the soil to see if it needs moisture. When watering, be sure to water long enough so that water penetrates down into the soil five or six inches. You may need to dig a little hole to verify that. If you find yourself watering every day or every other day, it is likely that you are not supplying enough water on any given day.

With autumn, we will start to see plants go dormant, and perennials will even start to die back. The root systems of all plants are still active, and watering will help to keep them in good health. You can continue to water until the soil freezes. Pay special attention to evergreens. Since they retain their needles year-round, they can continue to lose water through those needles. Make sure that all evergreens go into winter fully hydrated. If you are planting bulbs like tulips or daffodils, they will also need to be watered. When bulbs are planted, they need to grow a root system in the fall. That can be difficult to do if the soil is too dry.

Other areas that would need special attention are newly seeded or sodded lawns and any newly planted trees, shrubs or perennials. All these plants will need a good supply of water to help them become established. Even newly planted trees and shrubs do not need to be watered every day. As mentioned above, water as needed. Check the soil to see how dry it is. Remember that on a newly planted tree there will be a limited root ball. Apply the water to the root ball area.

We need to modify our watering practices based on the rainfall we get this autumn. Consider purchasing a rain gauge for your yard so you can accurately determine how much rain you are



receiving. Storms can be deceiving. A heavy storm may give the impression that a lot of rain fell, but a rain gauge will let you show you the true amount. Ideally, for most established plants we want to deliver an inch of water per week. If the rain provides half an inch, we need to provide the other half. Try to do the watering all at once so we get a nice deep watering. Sprinkling a little bit everyday does not give the plant the water it needs, and it promotes fungal diseases, not to mention what it does for your water bill.

For more information on watering properly using different watering devices, refer to the special [watering issue](#) we published earlier this season.

## **Upcoming Educational Events**

### **IAA Careers in Arboriculture Demonstration Event (Sept 14-15)**

The Illinois Arborist Association is hosting a two-day event On September 14 and 15. This event will be held on the grounds of The Morton Arboretum and should be of benefit for individuals interested in a career in the field of Arboriculture. For more information go to this [link](#).

### **APGA Plant Health Workshop (Sept 26)**

You are invited to join the staff of The Morton Arboretum, in collaboration with the American Public Garden Association (APGA), for an informative session on the Plant Clinic and current and emerging pests and diseases affecting woody and other plants. This workshop will be held on September 26th, at the Sycamore Room, from 9 AM to 12 Noon, and refreshments will be provided.

Register [HERE](#):

We are excited to see you on September 26th.

Tricia and Stephanie

Schedule:

9:00 AM Registration, Sycamore Room (East Side, across from Visitor Center)

9:15 AM Spencer Campbell, Plant Clinic Manager, The Morton Arboretum

9:40 AM Stephanie Adams, Plant Health Care Leader, The Morton Arboretum, Field Diagnosis of Pests and Pathogens

10:45 AM Break

11:00 AM Tricia Bethke, Forest Pest Outreach Coordinator, The Morton Arboretum. 2023 Most Unwanted Pests and Pathogens

## **Landscape below ground conference (October 11-12, 2023 in person or online)**

Learn about the latest science-based management strategies for establishing and maintaining trees' roots in challenging urban situations at the fifth Landscape Below Ground conference!

In this international conference on tree root development in urban soils, learn about the latest science-based management strategies for establishing and maintaining trees' roots in challenging urban situations. Top scientists and practitioners from around the world will present knowledge to help managers and policymakers choose, plant, and care for healthier, longer-lived trees by focusing on trees' critical and vulnerable root systems. Speakers will address such topics as the design and constraints of street planting spaces, nursery growing, soil selection and amendment, tree root architecture, and tree stability.

Landscape Below Ground V is presented in partnership by The Morton Arboretum and the International Society of Arboriculture.

Learn more and register [here](#).

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## Presenting Sponsor of the Plant Clinic



The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, Ph.D., Plant Health Care Leader; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum; and Carol Belshaw, Arboretum Volunteer. The information presented is believed to be accurate, but the authors provide no guarantee and will not be held liable for consequences of actions taken based on the information.

Thank you...I would like to thank all the staff and volunteers that report disease and pest problems when they find them. Your hard work is appreciated. Our volunteer scouts for 2023 are Deb Link, Maureen Livingston, Loraine Miranda, and Molly Neustadt.

Literature/website recommendations:

Indicator plants are chosen because of work done by Donald A. Orton, which is published in the book [Coincide, The Orton System of Pest and Disease Management.](#)

Additional information on growing degree days can be found at:

[http://www.ipm.msu.edu/agriculture/christmas\\_trees/gdd\\_of\\_landscape\\_insects](http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects)  
[http://extension.unh.edu/resources/files/Resource000986\\_Rep2328.pdf](http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf)

This report is available as a PDF at The Morton Arboretum website at <https://mortonarb.org/about-arboretum/plant-health-care-report/>

For pest and disease questions, please contact the Plant Clinic. You can contact the Plant Clinic via email at [plantclinic@mortonarb.org](mailto:plantclinic@mortonarb.org). Emails will be answered during business hours Monday through Friday. You can call the Plant Clinic by phone (630-719-2424) or visit in person, Monday thru Friday 10 am to 4 pm. On weekends and national holidays, Arboretum members need [a timed entry ticket](#) to enter the Arboretum and visit Plant Clinic in person. Non-members need [a timed ticket](#) every day and must pay the entry fee. Inquiries or comments about the PHCR should be directed to Sharon Yiesla at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org).

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## 2023 Plant Health Care Report Index



THE  
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Following is an index of the various subjects in this year's report. The number after each subject is the report number. For example, using the chart below, Cicadas..... 1 means that it was discussed in the PHCR 2023.01 or the newsletter dated April 7, 2023. The index is updated with the publication of each full issue and is included at the end of each full issue.

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